1. (previously presented) A method of obtaining an ultrasound perfusion image of tissues perfused with blood containing microbubbles, the method comprising:

transmitting a plane wave of microbubble-destroying ultrasound into the tissues, the plane wave of microbubble-destroying ultrasound encompassing a first area of the tissues, the microbubble-destroying ultrasound having an intensity that is sufficient to destroy microbubbles in the tissues that are insonified by the microbubble-destroying ultrasound;

repetitively transmitting a plurality of beams of imaging ultrasound into the tissues, each beam of imaging ultrasound having a second area that is smaller than the first area, the imaging ultrasound having an intensity that is substantially insufficient to destroy microbubbles in the tissues that are insonified by the imaging ultrasound;

receiving reflections from each of the transmitted imaging ultrasound beams in respective receive beams, each of the receive beams having a third area that is smaller than the first area; and

processing the received reflections over a sufficient period to allow re-perfusion of the tissues to provide an ultrasound perfusion image.

2. (canceled)

3. (currently amended) A method of obtaining an ultrasound perfusion image of tissues perfused with blood containing microbubbles, the method comprising:

transmitting a plurality of broad beams of microbubble-destroying ultrasound into the tissues, the steering directions of the beams of microbubble-destroying ultrasound encompassing a first area of the tissues, the microbubble-destroying ultrasound having an intensity that is sufficient to destroy microbubbles in the tissues that are insonified by the microbubble-destroying ultrasound;

repetitively transmitting a plurality of beams of imaging ultrasound into the tissues, each beam of imaging ultrasound having a second area that is smaller than the first

area, the imaging ultrasound having an intensity that is substantially insufficient to destroy microbubbles in the tissues that are insonified by the imaging ultrasound;

receiving reflections from each of the transmitted imaging ultrasound beams in respective receive beams, each of the receive beams having a third area that is smaller than the first area; and

processing the received reflections over a sufficient period to allow re-perfusion of the tissues to provide an ultrasound perfusion image,

wherein the act of transmitting ~~a~~ broad beams of microbubble-destroying ultrasound into the tissues comprises sequentially transmitting differently steered beams of microbubble-destroying ultrasound at a rate that is sufficiently high that subsequent beams are transmitted before a previously transmitted beam of microbubble-destroying ultrasound has been fully reflected from the tissues.

4. (previously presented) The method of claim 1 wherein the act of transmitting a plane wave of microbubble-destroying ultrasound into the tissues comprises transmitting a single plane wave of microbubble-destroying ultrasound into the tissues.

5. (currently amended) The method of claim 3 wherein the act of transmitting ~~a~~ broad beams of microbubble-destroying ultrasound into the tissues comprises transmitting a sequence of focused beams of microbubble-destroying ultrasound into the tissues.

6. (canceled)

7. (original) The method of claim 1 wherein the act of repetitively transmitting a plurality of beams of imaging ultrasound into the tissues and receiving reflections from each of the transmitted imaging ultrasound beams comprises transmitting the beams of imaging ultrasound into the tissues at a first frequency and receiving reflections

from the transmitted imaging ultrasound beams at a second frequency that is a harmonic of the first frequency.

8. (original) The method of claim 1 wherein the size of each second area insonified by a respective transmitted imaging beams is substantially equal to the size of the respective third area from which reflections from each of the transmitted imaging ultrasound beams are received.

9. (currently amended) The method of claim 3, wherein transmitting ~~a~~ broad beams of microbubble-destroying ultrasound further comprises setting at least one of the transmission parameters of beam focus, transmit aperture, or transmit apodization in correspondence with a desired first area size.

10. (currently amended) The method of claim 3, wherein transmitting ~~a~~ broad beams of microbubble-destroying ultrasound further comprises transmitting a plurality of broad beams through volumetric regions in different directions.

11. (previously presented) A method of obtaining an ultrasound perfusion image of tissues perfused with blood containing microbubbles, the method comprising:

using ultrasound to simultaneously destroy substantially all of the microbubbles in the tissues over a first area; and

repetitively using ultrasound transmitted and received in a plurality of second areas that substantially encompasses the first area to obtain an indication of the quantity of microbubbles in the tissues that are intact over a re-perfusion time, each of the second areas being smaller than the first area,

wherein the act of using ultrasound to simultaneously destroy substantially all of the microbubbles in the tissues over a first area comprises using a plane-wave beam of ultrasound to simultaneously destroy substantially all of the microbubbles in the tissues over the first area.

12. (original) The method of claim 11 wherein the act of using ultrasound to simultaneously destroy substantially all of the microbubbles in the tissues over a first area comprises using a broad beam of ultrasound to simultaneously destroy substantially all of the microbubbles in the tissues over the first area.

13-19. (canceled)